Undergraduate Research Position Available

Description:

Organic ligands that bind lanthanides (Ln) and actinides (An) have numerous applications in biological tagging, luminescent probes, energy, and many other fields. Current Ln and An ligands are based on naturally occurring Fe^{3+} binders called siderophores, which contain metal binding units such as hydroxamates and catecholamides. One possible approach to rapid preparation of Ln and An ligands is the use of solid phase synthesis.

Peptoids are biomimetic polymers composed of N-substituted glycine repeating units. Like peptides, peptoids are composed of glycine repeated units, but differ by point of attachment of the side chains. This seemingly minor change leads to a number of effects such as increased stability to proteases, conformational changes, and enhanced chemical diversity due to readily available building blocks. This work aims to use the versatility of solid phase peptoid synthesis to drive the discovery of new ligands.

We are seeking a talented and motivated undergraduate researcher to work with us on the synthesis and evaluation of these ligands. The candidate will be required to complete extensive safety training before starting work. The candidate will be expected to carry out solid synthesis of solid supported ligands and solution phase synthesis of monomers under the supervision of a postdoctoral researcher. We offer work in a highly dynamic and collaborative environment. Academic credit may be discussed for work carried out when school is in session. Prior research experience is welcome but is not required.

Required Qualifications:

- 1 year of organic chemistry
- 1 year of organic chemistry lab
- Commitment to laboratory safety
- Knowledge of organic mechanisms
- Theoretical knowledge of NMR
- Ability to work independently
- Ability to work on LBNL campus
- Commitment of at least 6-hour time blocks 1-2 times per week
- Excellent verbal and written communication skills

Desired Qualifications:

- One or more upper division organic chemistry courses
- Practical knowledge of NMR
- Familiarity with air-free synthesis
- Knowledge of chromatography
- Theoretical and/or practical knowledge of LC-MS